SECTION 08311
MANUAL CLEANROOM DOORS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Furnish and install complete Manual Cleanroom Door, including pivots, hardware, closer and doorstops.

B. Work not included.
   1. Locksets

1.2 REFERENCES/PROJECT REQUIREMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Requirements of the following Project Specification Sections apply to this section:
   1. Section 08311 – Glazing
   2. Section 13036 – Cleanroom Wall Systems

C. Additional Project Requirements
   1. ANSI Z97.1 - Safety Glazing Materials used in Buildings – Methods of Test
   2. ASTM B221 – Aluminum-Alloy Extruded Bars, Rods, Shapes and Tubes.

1.3 DEFINITIONS:

A. NAAMM – National Association of Architectural Metal Manufactures.

B. ANSI – American National Standard Institute.

C. ASTM – American Society of Testing and Materials.

D. NFPA – National Fire Protection Association.

1.4 SUBMITTALS:

A. General: Submit in accordance with Division 1

B. Product Data: Submit manufacturer's product data and standard details for manual doors, including fabrication, finishing, hardware, accessories and other components of the work. Include roughing-in diagrams, parts lists, and maintenance instructions, as well as certified test data, where required.

C. Shop Drawings: Submit shop drawings for the fabrication and installation of manual entrance doors and associated components of the work. Indicate anchors, joint system, expansion provisions, hardware, and other components not included in manufacturers standard data. Include glazing details.

D. Closeout submittals

1. Operation and Maintenance Data: Submit manufacturer's printed, recommended operation and maintenance data.

1.5 QUALITY ASSURANCE

A. Emergency Exit Doors: Provide manual cleanroom doors complying with requirements for doors serving as exit components in the means of egress as defined by NFPA 101 and as certified by the manufacturer for the application shown.

B. Particle Count: Certify that the operation of the manual cleanroom door meets the required cleanroom classification rating.

C. Manufacture's Qualifications: Provide units produced by a firm with not less that five years successful experience in the fabrication of manual doors of the type required.

D. Installer's Qualifications: Engage a technician who is factory-authorized and factory-trained to represent the manual door manufacturer for both the installation and maintenance of the type units required.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver doors and frames in approved protective coating and packaged to preend dust froom contaminating surfaces while in transit and during construction.

B. Inspect doors and frames upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.

C. Store doors and frames in an environmentally controlled area at building site under cover. Place units on minimum 4 inches high blocking, provide ¼inch spaces between stacked doors to promote air circulation. Ensure that the stacking and storage of the units does not induce warping or racking of the door units.

D. Unpacking shall be done outside the cleanroom area.

1.7 WARRANTY

A. Doors capable of operating without failure of any component with normal maintenance as defined in manufacturer's standard operating manual.
1. Provide a minimum 5-year warranty against defects in materials and workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Door Manufacturers:
1. Stanley Access Technologies
2. Horton Automatic Doors
3. Ceco Door Product
4. Commercial Door and Hardware
5. LSI Cleanroom

B. Acceptable Hardware Manufacturers:
   1. Arrow
   2. Corbin Russwin
   3. Don-Joe
   4. Dorma, Reamstown
   5. Hager
   6. Ives
   7. Notron
   8. Sargent
   9. Schlage
   10. Stanley
   11. S.Parker
   12. Von Duprin
   13. Or approved equal

2.2 MATERIALS

A. Aluminum Extrusions: Alloy and temper as recommended by manufacturer for strength, corrosion resistance, application of required finish and control of color, but not less than 22,000 psi ultimate tensile strength. Provide main extrusions of not less than 0.125-inch wall thickness, except as otherwise indicated.

B. Provide extruded glazing stops and other applied trim extrusions with minimum wall thickness of 0.062 inch.

C. Aluminum Sheets: Alloy and temper as recommended by manufacturer for strength, corrosion resistance, abrasion resistance, and application of required finish and control of color. Provide sheets of not less than 0.062-inch thickness, except as otherwise indicated.

D. Fasteners: Aluminum, nonmagnetic stainless steel, or other non-corrosive metal compatible with the items being fastened.

E. Do not use exposed fasteners except where unavoidable for the assembly of units, and unavoidable for the application of hardware.

F. Steel Reinforcement and Brackets: Manufacturer's standard units with 2.0-oz. hot-dip zinc coating, ASTM A123, applied after fabrication.

G. Compression Weather-stripping Manufacturer's standard replaceable stripping of molded neoprene gaskets. Compression gaskets include collapsible finger guards at pivot jambs as well as bumper-type gaskets at doorstops and laps.

H. Sealants and Gaskets: Use sealants and gaskets in the fabrication, assembly and installation of the work, which are recommended and guaranteed by the manufacturer to remain permanently elastic, non-shrinking, non-migrating, and without effect of outgassing.

I. Glazing:
   1. Tempered glass, conductive coating
   2. Conductivity: 10^6 to 10^8 ohms grounded with wall system
   3. Color:
      a. Clear Transparent
      b. Orange Transparent

4. Transmittance: no measurable transmittance <500 nm wave length at locations requiring Orange Transparent glazing
5. Thickness: ¼"

2.3 ACCESSORIES

A. Standard Hardware:
   1. Push/Pull
      a. Polished Aluminum bar
      b. Polished Aluminum handle
   2. Latch set
      a. Lever handle
      b. Polished aluminum
      c. Storeroom lockset function

B. Closers;
   1. Concealed closures
   2. Provide units, which have been independently certified to a minimum of 10,000,000 cycles, in accordance with ANSI testing procedures.
   3. Provide 90° hold open closures on doors as noted on drawings.

C. Door Stops:
   1. Floor mounted
      a. Burnished Cast Aluminum Ives Model # 430
      b. Or Approved Equal

D. Hinges:
   1. Pivots
      a. Clear Anodized Aluminum
      b. All pivot hinges shall be ball bearing with non-removable pins sufficient throw to clear the door trim or wall construction, but no more than necessary.
      c. Provide additional hinges as required by door height in accordance with the manufacturing recommendations.

2.4 FABRICATION

A. General:
   1. Sizes and Profiles: The required sizes for door and frame units, and the profile requirements are shown on the drawings.
   2. Prefabrication: Except as otherwise indicated, provide each continuous unit of framework, doors, side lights, transom panels, hardware, and accessory items, as a "packaged entrance" unit. Complete the fabrication, assembly, finishing, application of hardware and other work, before shipment to the project site, to the greatest extent possible. Disassemble only to the extent necessary for shipment and installation.
   3. Complete the cutting, fitting, forming, drilling, and grinding of metal work prior to cleaning and finishing. Cut material square and remove all burrs form all exposed edges, with no chamfer. Ease edges and corners to a radius of approximately 1/64th of an inch.
   4. Weld by methods recommended by AWS to avoid discoloration at welds. Grind exposed welds smooth and restore mechanical finish.
   5. Conceal fasteners, wherever possible.
   6. Maintain continuity of line and accurate relation of planes and angles. Provide secure attachment and support at mechanical joints, with hairline fit of contacting members.

7. Reinforce the work as necessary for performance requirements, and for support to the structure. Separate dissimilar metals with bituminous paint or preformed separators, which will prevent corrosion. Separate metal surfaces at moving joints with nonmetallic separators to prevent “freeze-up” of joints.

2.5 FINISHES

A. Powder Coated Static Dissipative Epoxy Paint. Color to be selected by Architect to match wall system.

B. Hardware Finishes:
1. Clear Anodized Aluminum Finish

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer’s instructions and recommendations.

B. Set units plumb, level and true to line, without warp or rack of frames or doors. Anchor securely in place. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

C. Install complete door operator system in accordance with manufacturer’s instructions.

D. Set tracks, header assemblies, operating brackets, rails and guides level and true to location with adequate anchorage for permanent support.

E. Install thin metal foil conductor at each corner of glazing panel to make electrical connection between face of glazing and metal doorframe. Foil shall be sandwiched between the glazing and the glazing stop material. Trim excess foil exposed to view.

3.2 ADJUSTING

A. After repeated operation of completed installation equivalent to 3 days’ use by normal traffic, readjust door for optimum operating condition and safety. Clean exposed surfaces.

3.3 CLEANING

A. Clean aluminum surfaces promptly after installation, exercising care to avoid damage of the protective coating (if any). Remove excess glazing and sealant compounds, dirt and other substances. Exercise extreme care in cleaning glazing. Follow manufacturer’s recommendations.

END OF SECTION 08311